

## ISSUANCE AND FITTING OF GAS MASKS

by  
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When you get your gas mask, you will notice that this little clasp is open. The way you fasten both ends of the strap together is to insert the strap with the little tab on it under the smooth side of the movable part of the clasp, bring it through, and then bring it around over the corrugated side. It is a little bit difficult to do, because there is very little clearance, but after you get that done you will notice that the strap will stay in the position that you want it to be in.

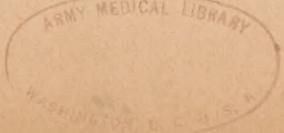
After you have your mask and have the fastener all fastened, sling it so that it is on your left side in the manner that I have it on. Then remove the mask from the carrier. I think if you would all stand up you would have a little bit better success on this.

Inside your facepieces you will find the side straps, and also inside the facepiece there is some packing that holds the facepiece in shape. I think if you will just remove those two items there and lay them down in some convenient place, we will be all set to go. We have two sizes of mask here, a large size and the medium.

JUL 20 1950

I note that some of you are wearing glasses this morning. If it is at all possible for you to go without your glasses, I would suggest that you remove them and put them in your pocket. You may wonder what these people who have to wear glasses are going to do. Well, they have what is known as gas mask spectacles, which are glasses having circular metal frames. The overall dimensions on the glasses are less than those of an ordinary glass, and those glasses are designed so that you get a snug fit to the face.

The next step in the adjustment of the mask is to loosen all of the head harness straps. These straps you have in the mask are called the head harness straps. Loosen them down to the metal tab, raise your mask in both hands, place the thumb inside the facepiece, both thumbs inside the facepiece with the fingers extending around on to this side, have your thumb in the head harness, and bring the mask up to the point of your chin, and then place the mask on your face, dig your chin right into the facepiece and slide the head harness straps over your head in this manner. (Illustrating.)



Now you will find that the mask is extremely loose on your face. Taking both your hands, grasp the two lowest head harness straps and start pulling them evenly until you get a snug fit. Then grasp the two center head harness tabs and pull them in until you get a snug fit. Then grasp the two top head harness tabs and pull them in until you get a snug fit. Now, don't tighten these too tightly. All you need is a snug fit, not a tight fit. If you get this mask too tight on your face it will leave ridges and creases. I see we have several ladies here, and when the ladies put on their masks they will have to brush their hair back out of the way.

Does everyone have his gas mask on with the head harness straps more or less snug? Now, I would like to have you check each other on this. Will you please come up here to the platform and turn around, please. This man has a very good job. The head harness tabs, the bottom one should have equal lengths left over and the same for the center and the same for the top. This part of the head harness where these three pieces are sewed together should be well down on the back and center of the head. The eye-pieces should be directly over the eyes, and you should get a snug fit around the chin and around the temples and around the forehead.

Take the palm of your hand, and put that over the bottom of your canister and breathe in. The facepiece should collapse against your face. It does in this case. If it does not collapse against your face, that indicates that you either have a wrong size mask or else it is not adjusted properly.

Are there any questions so far? Are there any instances where an individual has a gas mask which is obviously much too large for him or obviously much too small for him? The mask after it is on the face should feel reasonably comfortable.

To remove your mask, grasp the canister with your right hand, pull down, out, up, and slip the mask off your head. Grasp the canister, pull down, out and slip it off from your head. Take the head harness, fold it into the facepiece, then grasping the mask around the facepiece with the head harness flat inside, just slide it right into your carrier, and ease her down into the carrier.

QUESTION: Once you have those straps adjusted, would you have to loosen the straps the next time?

CAPTAIN FRITZ: No.

Now, let's go through the gas mask drill for a moment.  
Question?

QUESTION: Some of them seem to be too large.

CAPTAIN FRITZ: All right. Those whose masks are obviously too large better turn them in and get a medium size mask. Those of you who are reasonably adjusted can go through the gas mask drill.

Your carrier should now be buttoned up, slung so it hangs on the left side. We will assume that we detect gas. The first thing you do is hold your breath. While we are working slowly, obviously we can't hold our breaths for several minutes, we will assume that we hold our breath. Then removing glasses or caps, if you are dressed that way, you stow those away in a safe place. Then with your left hand you reach over towards the top of your carrier and open it, run your left hand down to the bottom of the carrier, right inside of your carrier; with your right hand grasp the mask and pull it out, and with a flip throw the head harness out. Placing your thumbs inside the facepiece and underneath the head harness, fingers extended and joined on the outside, bring the mask up to the point of your chin, stick out your chin. The next step in the operation is to dig your chin into the facepiece, slip the head harness over your head, and at that same time take and run your hands up the facepiece and smooth out any wrinkles, work your facepiece back on to your face to a snug fit around the chin and around the forehead and around the temples, then run your hands back and see that your head harness is all smooth and reasonably tight.

We will assume again that we are in a gaseous atmosphere, and in this particular instance some of the gas got inside the facepiece. The next thing to do is to clear the facepiece out. To do that, you put the palm of your hand over the outlet valve and exhale vigorously. You will notice that any air that you exhale escapes outside and around the edges of your gas mask. That is known as clearing the facepiece. After having cleared the facepiece, you should check your mask again by putting the palm of the hand over the inlet valve and inhaling. At that point the facepiece should collapse against your face. If it does, you have a good fit. If the facepiece does not collapse against your face you have a leak somewhere, your mask is not the right size, or it is not properly adjusted. Are there any questions so far?

QUESTION: Repeat that last test, please.

CAPTAIN FRITZ: The last test was to place the palm of your hand over the bottom of the canister (i.e. close inlet valve) and inhale. At that point when you inhale, the facepiece should collapse against your face. In other words, you should not be able to breathe in when you have the opening in the bottom of the canister sealed up. If your facepiece does not collapse against your face, either you have a mask that does not fit you or your mask is not properly adjusted. Any questions?

QUESTION: When you exhale, does the air go out around your ears?

CAPTAIN FRITZ: Yes, it does. The air escapes all around the edges of the facepiece when you put your hand over the canister.

All right, remove and replace masks. Grasp the canister with your right hand, pull downward, outward and upward. You don't have to grasp the head harness at all. Then put your head harness inside your facepiece, bring it over to the carrier, put it in the carrier and slide her home.

Now, let us have a word about the construction of this gas mask. We were talking about the facepiece and the head tabs and the carrier and so forth. After you have your gas masks in the carrier, you might as well sit down for a minute.

In this little set of instructions that came with your mask, on page 3 there is a diagram of your mask. Now, with your mask in your left hand, we will go over the various parts.

This metal container which I have in my right hand is known as the canister. That is the portion of the mask which contains the chemicals and filters that purify the air. At the bottom of the canister you will find a little valve with a little rubber disk in it. You can push your fingers in there and see that the little rubber disk is very flexible and pliable. This disk is really a valve. It permits the air to go into the canister, but it does not permit the air to go back out of the canister, and it is arranged in such a way that all the air which you inhale must go through the canister and is purified by the time it reaches your face.

Then looking inside your mask you will see that in the canister there is a little round hole. That is where the air after having passed through the canister comes

into the facepiece. The air that you breathe in goes into your lungs purified, and the air that you exhale comes out of the mask through the outlet valve which is on the side of the facepiece. These outlet valves all have a plastic guard over the top of them, and the plastic guard is sealed in, so we won't be able to remove them. However, I will explain to you just how that outlet valve works. It is made in such a way that when the air is exhaled it allows the air to shoot out, and when you inhale that closes the valve and does not permit the air to come into the valve. Therefore when you breathe in all the air must go through the canister first, and when you exhale all the air must come out through the valve on the side.

This mask has plastic eye lenses which are sewed in, and these straps are called the head harness straps.

Are there any questions so far?

QUESTION: When I exhale a lot of air goes out on the side.

CAPTAIN FRITZ: That indicates that your outlet valve is blocked up in some way. You may have to get in there and loosen that valve a little bit.

QUESTION: In clearing the facepiece, isn't it necessary to put your hand over this outlet valve rather than the bottom of the canister?

CAPTAIN FRITZ: You are right.

QUESTION: That is the first thing you do, isn't it?

CAPTAIN FRITZ: Yes, you are right on that. That was my error. I am used to working with a military mask where you have the outlet valve right in front of your face. We will go through that drill again and correct the error that I made.

In clearing the facepiece of a mask, you have to hold your hand over the outlet valve so that the air that you exhale must come out around the side of the mask rather than through the outlet valve. That was my error, and I am sorry I made that mistake. I am more or less used to working with military masks where you have the outlet valve right here in front of the face.

QUESTION: Why do you do that?

CAPTAIN FRITZ: The reason is to clear the facepiece of any gases that might be inside.

QUESTION: They would come out through there anyway, wouldn't they, instead of blowing all over your face?

CAPTAIN FRITZ: That is right, but suppose you had some tear gas in there?

QUESTION: Wouldn't it be better to have it coming out of here than pushing it back along over your ears?

CAPTAIN FRITZ: I will let you use your own judgment on that when you actually get in the gas chamber. I know that with the military mask you wouldn't get all of the gas cleared rapidly enough.

All right, gentlemen, if you will stand up again, slide the mask back in the carrier and the carriers all buttoned up. We will assume that we detect the presence of gas. Ordinarily the first thing we would do is to stop breathing, hold our breaths, then remove our hat or our glasses and having done that, we reach down with the left hand, pull open the flap with the right hand, reach inside the carrier, then holding the bottom of the carrier pull out the mask, flip out the head straps, place the thumbs inside the facepiece and fingers extended and joined outside, stick out your chin, and then slide on the mask. While your hands are right up there, you smooth back the facepiece, smoothing out any wrinkles, run your hand back over the back of your head to see that the head harness straps are all right, and then placing the palm of your hand over the outlet valve, which is on the left side of your facepiece, you exhale vigorously. The air should pass around the edges of your mask.

Now the next thing we want to do is to check our mask, to see that we haven't any leaks. Placing the palm of the hand over the inlet valve on the bottom of your canister, you inhale. At this point the mask should collapse against your face, indicating that you have no leaks around the sides of the mask.

Are there any questions so far?

Our next step will be to remove and replace masks. Grasping the canister with the left hand you pull down, out, up, and slip the mask off over the head.

There was one interesting point, some of the men became a bit short of breath after they had worn this mask a little bit. That is a normal reaction, gentlemen. The

breathing resistance through a mask like this is somewhat greater than without the mask, and you have to build up your chest muscles and strengthen those chest muscles so that you can overcome the additional resistance. We have had men train in gas masks after they have gotten used to them and after having worn the mask for a while they were able to do strenuous exercises in the mask. We have even had men play baseball games with the mask, so if your lungs are used to the additional resistance you are all right.

There is one little additional matter, and that is the test for gas. Now, here is "test for gas." You stoop down without touching anything to the ground except your foot, of course, then placing the first two fingers of your right hand between the cheek and the mask you make a little opening there and then holding your head down as close to the ground as possible you sniff. You will find that when you open up a little place between your cheek and the mask that the air will enter there and you will be able to get the air from the outside right in the facepiece of the mask without having it go through the canister. The purpose of that is to find out whether or not it is safe to remove your mask. If, when you sniff, you smell gas, you keep it on. If not, you are safe in taking it off.

QUESTION: How long is this mask good for?

CAPTAIN FRITZ: According to the instructions in the booklet, the civilian type of mask is good for four hours of continuous wear.

QUESTION: Does it wear out if you don't use it in gas?

CAPTAIN FRITZ: I didn't think it did, but according to the table you are supposed to keep track of the time you actually wear the mask. Military masks are good for 40 hours use in ordinary field concentrations of toxic gases, whereas this one will be good for four hours use in field concentrations of gas. You are supposed to keep track of the actual number of minutes of time that you have worn the mask. However, unless you are in a very humid moist atmosphere wearing of the mask in pure air isn't going to harm it any. Does that answer your question?

QUESTION: Do the chemicals in the mask deteriorate just on standing?

CAPTAIN FRITZ: The question is do the materials in the canister deteriorate just on standing. I will answer

that one by telling you what is in there. The only substance in the canister is charcoal. Activated charcoal will not deteriorate on standing. Charcoal will lose its efficiency in a moist, humid atmosphere so the answer is yes and no, depending in the main on the place you keep your mask stored.

We have some very interesting exhibits here. On the front table we have a suit of impregnated clothing. This suit of impregnated clothing is just the regular ordinary cloth clothing that the soldiers wear. It consists of a suit of underwear of the long sleeve variety of cotton or wool underwear, and the long drawers. That underwear is impregnated with chemicals which make it gas resistant. Here is a set of impregnated coveralls. I think I had better pass this thing around, or maybe I had better take the pair of socks. I want you to smell these socks. You will note the chlorine there. That is the material which makes this cloth resistant to gases. This hood is designed in such a manner that it will button on to the top of the coveralls, or if the shirt is worn and it is impregnated there are two buttons on the back of the shirt and there are buttonholes on the back of this hood so that you can button those right on to your coveralls or your outer garment. These gloves are regular knitted gloves with long gauntlets, and they are also impregnated. These gloves are worn underneath rubber gloves. These shoes are regularly ordinary G.I. shoes. These shoes are just brand new and they have not been worked over yet. However, this material in this can is called shoe impregnite. It is kind of a shoe polish. Its purpose is not to put a gloss or a shine on the shoe, but when you work this material into the leather of the shoe it makes the leather resistant to mustard gas and Lewisite or other vesicants.

When a soldier has his gasproof garments on here is what he looks like. He has on shoes that are impervious, they are rubber shoes or the leather shoes which have been treated with impregnite. Then he also wears impregnated leggings. Then he has on the suit of clothing which covers all his body, and in the case of the garments you have there they are impregnated with chemicals which make them resistant to vesicant gases. He has cloth in his gloves which are impregnated and over them he wears these heavy rubber gloves. The hood protects the back of his head and neck and the portions of his face which would ordinarily be exposed, and the gas mask protects his eyes and face and lungs so that the air he breathes is sufficiently purified.

This gentleman on our left has on the impervious type of clothing. This type of clothing is made of material which is very similar to the ordinary raincoat slickers. It is impervious not only to moisture but also to toxic gases, or let me say it is impervious to toxic gases and it also is impervious to moisture, and the result is that this man in this suit can wear it only about a half an hour, because the moisture exuding from his body cannot escape and he is soon swimming in his own moisture. This type of clothing is worn only when absolutely necessary, namely when there are large amounts of vesicant agents around. The permeable type of clothing is worn for most ordinary occasions. You can walk into spots where you have got mustard gas around and you will be fully protected. However, this permeable type of clothing will not protect you where you have large splashes of liquid mustard coming at you, whereas the other type of clothing will.

Are there any questions?

QUESTION: Are those garments inflammable?

CAPTAIN FRITZ: I don't know. I presume it is. That is, it would not be dangerously inflammable like nitrate film, but I imagine if you got that stuff hot enough it would burn.

QUESTION: What is in the can there?

CAPTAIN FRITZ: The material in the can is called shoe impregnite, which is what is used for making shoes resistant to vesicant agents.

QUESTION: Is there anyone whose skin is sensitive to this impregnated material?

CAPTAIN FRITZ: I can't answer that one. I don't know. I think there are some people who would be more or less sensitive to the chlorine which is liberated in small amounts from this impregnated material, and you notice the chlorine odor on it. I presume that anyone who is sensitive to chlorine or hypochlorites or material of similar nature would be sensitive to this material.

QUESTION: What is the period of life of the impregnation?

CAPTAIN FRITZ: The period of life of the impregnation depends a lot on the atmospheric conditions. Under tropical conditions where there is a lot of moisture being given off the body, that moisture is coming from

the body to the outside tends to wash away the impregnating material. However, those suits are good for several weeks, I think, or even months of wear before they are considered unfit for use, and there are certain ways of testing the clothing to determine whether or not it is still good.

QUESTION: How is this clothing cleaned?

CAPTAIN FRITZ: This clothing can be laundered if you use cold or cool water. You can wash it with cold water and soap and launder it. However if you have hot water the hot water will dissolve away the impregnating material on the cloth.

QUESTION: Does it have to be re-impregnated then?

CAPTAIN FRITZ: Yes, it can be re-impregnated then, provided it is not worn out.

QUESTION: This shoe material has to be rubbed in the soles, too?

CAPTAIN FRITZ: Yes, the shoe impregnate must be rubbed into all the material of the shoes and also in the laces of the shoes. You can define this impregnating material as a layer of chemical on a filter paper. You have a certain amount of the impregnating material there and if you put a definite amount of your agent on that it will neutralize so and so much. If you put more than that on and you use up all your impregnating material the agent is going to penetrate. In other words, we have a definite amount of material on this cloth which will neutralize mustard gas, and when you use that up the mustard gas will keep right on going through.

QUESTION: What about the care of the mask itself after you have been through a gas attack, if the mask itself is contaminated with the gas?

CAPTAIN FRITZ: If contaminated with non-persistent agents, all you have to do is to air it out for a while. If you get mustard gas splashed on it, you will have to decontaminate your mask.

